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THE CANADIAN SOCIETY OF
COST ACCOUNTANTS & INDUSTRIAL ENGINEERS

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Subscription price to non-members, \$5 a year. Single copies 50 cents.
Members desiring 5 copies or more of a single issue may obtain them
at 25 cents each.

Society's Annual Meeting Held in Montreal

G. H. Houston, of Toronto, Elected President—Financial Year of
Society and of Chapters to end April 30th—Present Fee of \$15
Retained to Cover Ensuing 14 Month Period.

The annual meeting of the Society was held in Montreal on Friday, April 21, 1933, in accordance with notice. It was preceded by a meeting of the directors of the Society, attended by the following: L. Belanger, R. W. Louthood, J. P. Masterson, L. A. Peto, J. Paul Rolland and R. R. Thompson of Montreal; W. M. Lane and Jas. Turner of Toronto; and W. A. McKague, general secretary.

The directors, in addition to reviewing the work of the Society during the year just ended, discussed the prospects for the future, and possible steps which might be taken for strengthening the Society. Resolutions from two Chapters, favoring a reduction in annual fee, were reported, and consideration was also given to a matter which has been discussed for some time, viz., extending the Society's financial year so as to more nearly correspond with a season's activities. It was finally decided to extend the year to close April 30th. This applies to Chapters as well as to the Society's business. The \$15 fee is retained, but this year it will cover the 14 months, in place of the regular twelve months. The directors felt that in view of present discussions regarding inflating the dollar, and other uncertainties, it would be unwise to make any further change at this stage.

It was also decided that the board of directors of the Society include presidents of the past ten years.

The annual meeting of the Chapter is to be held not later than May 31 each year. It was felt that in most cases it would be most convenient to hold it in April, the closing month of the year, but that May would also be in order. The annual meeting of the Society will be not later than June 30. The increase in the Chapter proportion of fees, from 20 per cent to 25 per cent, which was made effective for the year just ended, was made permanent by by-law amendment.

These changes were confirmed at the annual meeting of the Society, which followed, and the minutes of which are printed elsewhere in this issue.

Following the annual meeting, a meeting of the new directors was held, with the following in attendance: L. Belanger, G. T. Bowden, P. E. Dufresne, R. W. Louthood, J. P. Masterson, D. R. Patton, L. A. Peto, and J. Paul Rolland, of Montreal; G. H. Houston, W. M. Lane and Jas. Turner, of Toronto; and W. A. McKague, general secretary. Mr. Houston was elected president for the ensuing year, with Mr. W. J. Mundell of Winnipeg and R. W. Louthood of Montreal as vice-presidents, K. A. Mapp of Toronto as honorary treasurer, and A. E. Keen, of Hamilton, as honorary secretary. It was also decided, in view of the special difficulties in operating small chapters in these times, to give Central Ontario, Winnipeg and Vancouver special assistance this year, by extending their regular proportion of fees from 25 per cent to 33 1/3 per cent.

FINANCIAL STATEMENT

FINANCIAL STATEMENT

BALANCE SHEET

28th February, 1933

ASSETS

| | |
|---|----------|
| Cash in Bank | \$ 56.04 |
| Investments—Bonds at Cost (Market Value \$3,562.50) | 3,492.95 |
| Interest Accrued | 39.58 |

\$3,588.57

LIABILITIES

| | |
|---|------------|
| Membership Fees Received in Advance | \$ 86.25 |
| Surplus | |
| Balance, March 1, 1932 | \$3,047.71 |
| Membership Fees, prior years | 118.50 |
| Surplus for the year ended February 28, 1933... | 336.11 |

\$3,588.57

STATEMENT OF REVENUE AND EXPENDITURES

For the year ended 28th February, 1933

Revenue:

| | |
|----------------------------|------------|
| Membership Fees | \$5,142.75 |
| Interest Earned | 190.50 |
| Publications Revenue | 236.05 |
| Examination Fees | 50.00 |

\$5,619.30

Expenditures:

| | |
|----------------------------|------------|
| General Expenses | \$1,895.50 |
| Chapter Allowances | 1,327.63 |
| Publications Expense | 2,044.00 |
| Bank Exchange | 16.06 |
| Surplus for the Year | 336.11 |

\$5,619.30

MINUTES OF ANNUAL MEETING

Minutes of Annual General Meeting of the Canadian Society of Cost Accountants and Industrial Engineers, held on April 21, 1933, at 2 p.m. in Montreal.

L. A. Peto, Chairman.

W. A. McKague, Secretary.

Minutes of Last Meeting: The minutes of the last annual meeting of the Society, as printed in Cost and Management of May, 1932, were approved.

Financial Statement: The financial statement for the year ended February, 1933, was read. Moved, seconded and unanimously carried, That this statement be approved.

Report for Year: The report of the president and directors for the year ended February, 1933, was read. Moved, seconded and unanimously carried, That this report be approved.

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By-laws: On recommendation of the directors, it was moved, seconded and unanimously carried, That the by-laws of the Society be amended as follows: In Article 2, paragraph (b) the word March be changed to May; in Article 3 paragraph (a) there be inserted after "the annual meeting of the Society" the words "and of the presidents of the Society for the preceding ten years who are still members of the Society"; in Article 6 paragraph (a) the word February be changed to April; in Article 7 paragraph (b) the figure 20% be changed to 25%; Article 7 paragraph (c) be amended to read as follows: "The fiscal year of each Chapter shall end on the last day of April in each year. The annual meeting of each Chapter shall be held not later than May 31st."

Students: Moved, seconded and unanimously carried, That the directors of the Society be authorized to establish a "student membership" with fee not to exceed \$3 per year, and to establish regulations governing this membership."

Elections of Directors: The following were nominated as directors of the Society for the ensuing year: G. T. Bowden, R. W. Louthood, J. P. Masterson, and J. Paul Rolland, of Montreal; G. H. Houston, W. M. Lane, B. W. Lang, K. A. Mapp, E. D. MacPhee, and G. M. Mulholland, of Toronto; A. J. Ballentyne and A. E. Keen, of Hamilton; E. Tailby, of Central Ontario; and W. J. Mundell, of Winnipeg. There being no further nominations, the chairman then declared these duly elected directors.

Thanks to President: Moved, seconded and unanimously carried, That the Society extend its thanks to Mr. L. A. Peto for his able work and active interest in the Society as its president during the past year.

Thanks to Auditors: Moved, seconded and unanimously carried, That the Society extend its thanks to Messrs. Fred Page Higgins, F.C.A., and C. H. Pelling, C.A., for acting as auditors, and that they be reappointed.

The meeting then adjourned.

L. A. Peto, Chairman.

W. A. McKague, Secretary.

REPORT OF PRESIDENT AND DIRECTORS

Presented at annual meeting of The Canadian Society of Cost Accountants and Industrial Engineers, Montreal, April 21, 1933.

We have pleasure in reporting as follows on the activities of the Society in the year ended February, 1933.

Membership: Due to unemployment and other economic difficulties during the year, there was some reduction in our membership. The following is a comparison of membership, fully paid, at the close of the year as compared with the close of the preceding year:

| | Feb. 29, 1932 | Feb. 28, 1933 |
|-----------------------|---------------|---------------|
| Montreal | 135 | 114 |
| Toronto | 167 | 144 |
| Hamilton | 45 | 38 |
| Central Ontario | 23 | 16 |
| Winnipeg | 32 | 22 |
| Vancouver | 25 | 13 |
| Total | 427 | 347 |

REPORT OF PRESIDENT AND DIRECTORS

Since the close of the year, several more members have been able to pay their dues, so the results are slightly more favorable than indicated above.

Finances: The Society's revenue decreased from \$6,182.12 in the previous year to \$5,619.30 in the year just ended. The general expenses and the publication expenses were reduced, while the allowance to Chapters was increased from 20 per cent to 25 per cent of fees, the amounts paid to Chapters being \$1,194.04 for the previous year and \$1,327.63 for the year just ended. The Society has a surplus for the year. Our investments are in Canadian government bonds. Our stock of reference literature has been provided out of current revenue.

Chapters: The six Chapters of the Society held a total of about 50 meetings during the year, the addresses and discussions being of the usual high standard. The following is a summary of Chapter financial results for the year:

| | Balance brought forward | Receipts | Expenses | Balance carried forward |
|--------------------|-------------------------|------------------|------------------|-------------------------|
| Montreal | \$ 405.56 | \$ 442.38 | \$ 561.41 | \$ 286.53 |
| Toronto | 276.59 | 513.56 | 399.49 | 390.66 |
| Hamilton | 43.54 | 138.21 | 129.13 | 52.62 |
| Central Ontario . | 64.07 | 60.00 | 56.90 | 67.17 |
| Winnipeg | 191.94 | 85.00 | 73.22 | 203.72 |
| Vancouver | 57.17 | 105.50 | 99.46 | 63.21 |
| Totals | \$1038.87 | \$1344.65 | \$1319.61 | \$1063.91 |

Publications: Our monthly "Cost and Management" was published regularly during the year, and also a pamphlet covering by-laws and work of the Society, and membership list.

Reference Literature: An increasing proportion of our members are making use of the reference data collected and kept on file by the Society, and we hope that others will also do so, as this involves considerable work and some expense, and should be of real value to members.

Employment: As there were few employment openings during the year, we were able to assist only a small number in this field, but we are keeping particulars of experienced available men on file, and undoubtedly will be able to assist many of them in the future.

Visits to Chapters: The President of the Society visited the Chapters in Montreal, Toronto, Hamilton and Central Ontario, and Mr. D. M. Farish, C.A., of Montreal, represented him on visits to Winnipeg and Vancouver.

Membership Trophy: The membership trophy, donated to the Society in 1930, for progress in membership, has not been awarded this year, since no Chapter was able to show an increase. We hope that such an award will be possible at the close of the coming season.

All of which is respectfully submitted.

L. A. Peto,
President.

W. A. McKague,
General Secretary.

A salesman was doing his best to induce the good lady of the house to purchase a vacuum cleaner.

"And does it really pick up the dirt?" she enquired.

"Yes, madam," he replied. "Only yesterday I ran it over one of those French novels and when I'd finished it looked like 'The War Cry'."

An Outline of Overhead

BY LORENZO BELANGER, C.P.A.

(Before Montreal Chapter, March 24, 1933)

WHAT are overhead costs? Maurice Clark in his "Economics of overhead" written in 1924, says. "The term is nowadays much used and variously defined; in fact, it covers an entire family of ideas, but they have one essential thing in common. They refer to costs that cannot be traced home and attributed to particular units of the business in the same direct and obvious way in which, for example, leather can be traced to the shoes that are made from it. And most of the real problems involve one other fact: namely that an increase or decrease in output does not involve a proportionate increase or decrease in cost. There is a deal of complexity in the attempts that are made to trace untraceable costs or to assign them on some rational basis or to discover the true added costs of added business, but at the bottom of these complexities lies a fact that is simple. That fact is unused productive capacity or capacity of which full advantage is not taken. "Idle overhead" that great industrial sin is simply the expense side of this unused capacity."

Eric Carmman in "Basic Standard Costs", 1932, writes: "The procedure as to burden (overhead) is to absorb in current costs only an amount equivalent to current operations, taking the number of hours run at normal burden rates set up in the budget for operations at normal capacity. The difference between the amount so derived, if the actual expenses are greater, is carried to profit and loss as unabsorbed burden. The reason for doing this is to avoid inflating costs when operating conditions are below normal, for the variation from this cause is not properly a part of cost of products made under these conditions. In the converse situation, it is equally undesirable to reduce costs when operations are above normal, and the variation from this cause is not an average or usual condition from which the cost of products then being made should benefit. Over absorbed burden, if the actual is less than the amount absorbed at normal rates, is likewise carried to profit and loss."

Overhead and burden, used in both definitions, are general terms. Idle overhead or unabsorbed burden originates from unused capacity and result in wastes and other economic disturbances. Up to a fixed limit it is part of cost and is recoverable in the selling price with material, labor and profit. Beyond this point, it becomes "sunk costs", a deduction from profits.

Overhead is universal. Individuals like any body organized for the production and protection of wealth and income, must bear the burden. It dominates the operations of governments and of public utilities. It is the decisive factor of success or failure of industrial and trading enterprises.

In practice any expense that is not material or productive labor is christened "overhead", and the concealed waste from variations in production and merchandizing is usually ignored. The trader is not aware of the fact that his business is to sell goods, not to keep them, and that all trading expenses tend towards getting rid of the goods. The ideal situation at the moment chosen to draw a balance sheet since

AN OUTLINE OF OVERHEAD

a balance sheet is only a moment in the life of a running business, would be the absence of merchandise. Thus the stock in merchandise becomes partially or wholly overhead. The loss in its value of fluctuation of the market, by shopwear and obsolescence, is overhead. It soon becomes "sunk costs". It is the machinery of the trade. It ties up a certain amount of capital like fixed assets and is subject to the same laws.

Trading expenses are mostly incurred as advances against profit expected from sales. Being traceable to sales, they are not overhead as defined, but the excess above a natural ratio becomes unused capacity.

Financial expenses and the difference between cash discounts given and received, are the penalty for lack of capital and cannot be included in trading expenses. They are properly the overhead on returns, and the variations are in many ways beyond control. Bad debts are purely "sunk costs".

In industry, the bulk of overhead is found in the production account. Part of it arises from direct expenses, and the excess is the actual result of unused capacity, thus distinguishing it from overhead caused by indirect expenses. Some are fixed and others variable, but a portion of every class spells waste.

An engineer suggested that fixed charges such as rent, rates, taxes, insurance and depreciation, that have to be incurred whether the business is running or not, should be deducted from sales first, so that the exact ratios of actual production be ascertained. The suggestion is worthy of consideration, and many interesting comparison may be established.

History

The idea of overhead or expenses of production, is not old. The craftsman of other days counted the cost of his materials and the merchant the outlay for his wares, but his own work was not thought of as expense because he did not pay for it. All was figured in terms of cash receipts and disbursements. With the advent of the wage system, labor became an expense of production paid out by the entrepreneur to someone else. This took a definite form with the domestic system when the employer had to pay the worker for his time, the use of his tools and of the premises where he worked.

The employer's chief investment was in the materials, so that every element now regarded by economists as expense of production, could be directly charged to an item of product. Expenses were thus traceable directly to units and overhead expenses were virtually non-existent. Much of this is still found in the garment industry where home work is still in favor, in the shoe industry with the U. S. M. rented machinery, and in the European distillery business.

The One Price System

Our present trade system is artificial and conventional. Economists are often tempted to regard these conventions as natural laws, and economics become artificial. Selling goods at the same price to all customers is one of them. Discrimination in prices is the natural and universal mode of trade in countries not yet industrialized. The American one price system is gradually gaining ground in Europe. Goods are not yet definitely standardized. The merchant knows that he has to sell his goods at a figure higher than what he paid for them, and that his own time, his own subsistence, like those of his assistants, constitute an overhead charge, chargeable to the entire business,

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but not to any particular sale. He adopts a single price where all costs are accounted for.

We must however note here that the single price principle is not absolute. There are cheap shops and expensive shops where the same commodity will be priced at figures wide apart. There is also the modern merchandizing method, where all profits and overhead are loaded over the merchandise during a certain time until paid for, and the rest of the merchandise is sold at near cost. Nevertheless, one price prevails at one time. The classes are different, and so are the modes of recovery of overhead.

Value and Cost

Science of economics is principally concerned in the balancing of value against cost. Economic efficiency consists of making things that are worth more than they cost. The costs that are traceable are only part of costs of business as a whole. Shall we keep on counting the costs that would accumulate even if the factory is shut down? Overhead costs go on whether the business operates or not, so that owners are no worse off if they operate and do not earn it than if they stand idle and do not earn it. Whilst this is the extreme, we may consider the problem under different angles in its various stages of acuity and try and determine what part of costs is overhead in an operating business. That is try and segregate the space occupied by untraceable costs, in different volumes of production.

Maurice Clark formulates a paradoxical law for the application of overhead costs: "If any business that would pay its own particular costs is refused because it will not pay its share of overhead, there is a loss. Yet prices must be charged which will cover the overhead, so long as industry depends on private enterprise." This sets a dilemma, and the remedy suggested is discrimination. Clark concludes: "The overhead cost must be levied on such parts of the business as will stand the burden, while other parts of the business, which cannot otherwise be had at all, are charged whatever they can pay, regardless of overhead costs." Night rates on telegrams and long-distance telephone calls are examples of rates to develop this "offpeak" business. This is also noticeable in the garment industry, where fixed salaries of the designer, trimmer, foreman, have to be distributed between leaders sold at a very narrow margin and slow moving goods. It often results in "sunk costs" or unabsorbed burden when the volume of production is not up to budget figures. This was my first problem in costs 33 years ago.

Business depressions, sudden and unforeseen, cause an excess of overhead costs that the business may not recover. Efforts tend to increase the volume and cut-throat competition follows at prices nearer and nearer to costs.

Buying and selling involve a considerable element of "overhead cost". Selling a variety of goods may be more effective than selling a line too narrowly specialized. Specialization and standardization tend to reduce overhead, but difficulties may be encountered when selling the goods and new overhead may offset the saving in the factory.

The Human Factor and the Machine

Born as an extension to human skill and to increase his capacity, the machine has become the central figure of manufacture and transportation. It dominates the rhythm of production and rules the movements of the worker.

It requires only maintenance and no incentives are necessary.

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Monotonous uniformity of operation is its main feature. Minor changes in patterns require a surgical operation and major ones, that it be born again.

The costs are constant and are generally classed as overhead costs. Being even more definite and visible than labor costs, these costs have so many analogies with direct expenses that Romier includes them with wages. The costs of the machine, however, are constant and are not proportioned to services rendered. Like labor, excessive costs are incurred which become "sunk costs". The increased speed of the machine will reduce the ratio of maintenance and of the labor, which itself may become part of the machine overhead.

Costs of materials are incurred before manufacturing them into finished products, labor that works must be paid but maintenance of buildings and machinery may be postponed. Deterioration goes on and obsolescence reduces value whether they are provided for or not. It is not the cost that is postponeable, but the making of it good that is. A well managed depreciation account distributes the expense regularly and equally over the life of the machine. The concentration of expenses at certain times must be treated properly in depreciation and replacement accounts.

The substitution of the machine for hand labor with corresponding large fixed investments, tie up each productive worker to a cost far beyond his individual wages. His productive capacity is not so much a matter of cost as it is a matter of high machine cost. Yet the worker's ability is the measure of heavy machine costs.

The human worker has many and varied capacities developed by habit and custom. He will never do two things exactly alike, though imitation prompts most of his movements. Steady in appearance, he works now faster and now slower. Rewards and penalties are necessary. He believes that his actual maintenance is his own burden, and not an obligation of industry, except so far as his wages that will cover it.

Labor As An Overhead Cost

Once the unused productive capacity is conceived as "idle overhead" or sunk costs, the idea soon extended to human powers as well as to the powers of physical plant and machinery. If the trained laborer is accepted in a sense, as fixed capital, which must earn a certain return, it is reasonable to state that labor involves an overhead cost. There is an important part of the cost counted as wages that the laborer must cover just as the employer must cover the overhead cost on account of the capital. If this is not done, the burden comes back to industry as reduced productive power. The fault may be found in the wage system, but this is not the subject of this paper.

The human machine is more than a mere mechanism. A man feels tired. Attention wanders and muscles fail to respond. Occupational diseases appear, wear is noticeable. Lack of variety renders work distasteful. Man retains his consciousness and braces up into a new effort. Again, the same phenomenon occurs. Production wavers from normal to minimum. Symptoms are sometimes hard to detect, but results cannot be ignored. We have another source of overhead arising from labor, itself a direct charge.

Fatigue becomes a cost only when the day's rest and food will not make good. Higher wages may mean better food and living conditions, and raise the physiological maximum. It is only when wages are very low that the laborer will reach the limit of his body strength to secure the utter necessities of life. It is not however,

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fatigue alone that exerts the body. The craving for pleasure and for all joys of life tax unrenewed energy, when relaxation and recreation would be refreshing. We have here overhead partly against the manufacturer, and against the laborer whose reward will be adjusted to production.

Variations in work are not caused only by a longer or shorter workday. Weather, lack of material or lack of orders, put men on part time, or they are laid off or discharged. These are human costs and must be regarded as "overhead costs" to the laborer, but do not affect the cost of human labor to the manufacturer.

Ultimate Cost Of Labor

Maurice Clark looks at labor costs from five standpoints: fatigue of labor, maintenance of laborer, return on investment in labor power, alternatives open to the laborer and the money cost of labor to the employer.

Fatigue, as we have seen, occurs regularly. Each man has been endowed with a certain capacity for enduring fatigue. He may use it freely and be happy, but he must not overstep the limits. Before, however, overstepping this limit, there is a gradual decline in production, which must be averaged as overhead over the entire day's work.

Maintenance of labor is another overhead cost. Hard labor requires more food, and high class mental and directive work require leisures and relaxation in travel and otherwise. Then, there is the constant element: minimum standard of living. Man cannot live forever, any more than the machine, but he must replace without too much deterioration of the stock. Hence, a certain standard of living which must include the necessities of life and a certain additional satisfaction, and protection against the unexpected. Levels of such standards vary and it is very difficult to draw the line anywhere. A too low standard creates a burden on the community in relief and charitable institutions. We may conclude therefore that there is an unavoidable overhead in the maintenance of labor which exists but cannot be figured as in the case of the machine.

Since many years, all efforts have been directed towards improving the worker's standard of living. Shorter hours and larger pay have been advocated by reformers. Later, accident insurance became compulsory and may be followed by unemployment and old age compensations. It is part of Roosevelt's program in his book: "Looking Forward". Shorter hours of work mean longer leisure hours and leisure is expensive. How much of it will come under the heading of maintenance? An Islamic proverb says that "The finding of a coin immediately brings forth desires that ten coins could not satisfy". Excess salary is sought more in view of leisure pursuits and enjoyments, than of intellectual development or improvement of manual skill. To enjoy a full measure of rest and relaxation, one must feel tired but not exhausted. Is there no point where human fatigue and rest will meet, and a balanced distribution of the hours of a day reached?

The employer by law protects his employees against injuries and death by accident, and disburses the premium. This is a direct addition to labor costs. Can the beneficiary expect this protection to come out of his employer's profits as sunk costs, or be a part of the selling price as overhead? He will necessarily bear a part of the premium as expense of labor has its limits, and as consumer he will share with the rest of the community this cost of social overhead.

Accident assurance affords protection during working hours, but

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if a worker is killed by an automobile on his way home, 50 feet from the shop, there is nothing left for his family. I believe that group life insurance as distinct from accident insurance, would be a more profitable overhead on his earnings.

Unemployment insurance, a prepaid dole or cost of idleness, and old age compensation, a reserve for obsolescence of the human factor, are very much talked of under the name of social insurances. Is the employer going to foot the bill alone as in the case of the mass of mere inert matter making up the fixed property, or shall the employee leave part of his weekly salary to insure his future comfort? He may die before being out of work. The community will benefit by his thrift imposed by law. However, as in the case of accident insurance, these new forms of protection will be included in the cost of labor, and much at the beneficiaries' expense, as direct and social overhead.

We now come to the return on investment which labor power represents. Training is an investment, but it has this peculiarity that it becomes the property of the one who did not pay for it. The capitalist invests an amount necessary for the training of workers. It may be very small, but it represents an important capital to the worker who cannot be dispossessed. If the worker pays for his own training, well and good, but in every case there will be an increment that will add to his capital as overhead cost to the manufacturer's, though the latter get large returns that will continue after the worker's dismissal through transmitted training. Specialized training in late years has created a certain increase in overhead by the waste incurred by the shifting from one job to another, necessary to the balancing of production or changes in designs etc.

The fourth subject is cost of labor in the sense of alternatives sacrificed. An hour's work is traceable to human cost on account of the work, compared to some other use which might be made of the same time and energy. Giving up leisure is the variable element in labor cost. It does not mean a cost until the wages reach the point where such leisure enjoyment can be afforded. Of course, irregular and involuntary unemployment is not a vacation, and cannot be called leisure. If the unemployed finds a new job, he is not losing anything as his time between the two jobs did not cost him anything.

As to money cost of labor to the manufacturer, it is first necessary to put industrial resources in their proper places and in proper proportions, and second, to utilize the idle capacity of labor and capital. If they are both devoted to one occupation, the cost is their full market value, whilst filling idle time is next to nothing. The ultimate cost of labor varies very little in proportion to amount of work done, and it is a constant cost.

Is unemployment necessary? The unemployed may be called the "industrial reserve army". It is inevitable and it is not waste, but it must be kept down to the lowest proportions. The problem is how much unemployment is necessary, who benefits by it, and who must bear the burden of the remainder. According to economists, the need for unemployment is necessary on account of the need of industries to select suitable workers, the need of workers to find the place where they can be most useful and happy, the need of new enterprises being launched, to get help without disrupting already established enterprises, the need of the fear of losing the job as an incentive, the need, if it exists, of strikes to protect labor's legitimate interests or a replacement force by strike breakers, for the protection

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of the community; the need of having this reserve of unused trade knowledge, need of supply of labor to handle seasonal peaks and other incidental irregularities; the need of a reserve to handle the peak of the business cycle, and last, the need of throwing upon labor at least a part of the burden of dovetailing together seasonal occupations and finding work in dull times.

The really necessary unemployment is not a serious problem, but it must be minimized as a matter of economy of idle social overhead. The unemployment due to business fluctuations is unnecessary, but the major part of the burden would be placed on industry by a fair social accounting.

Part of the cost of labor, as we have seen, is already an overhead cost to the employer. The budget of the salaried force and essential wage earners who are expected to adapt their hours to the requirements of business; overtime without extra pay, vacation, sickness and dull times with pay. The salary is a constant cost, and there is a movement toward extending this status to labor in general. Common labor does not come under this arrangement. Some get higher pay for irregular jobs, others do not. If they do not, the laborer, his family, his friends and the community pay part of the overhead cost of the industry. If lost time is paid, then the industry alone pays the overhead. The overhead cost of labor is diffused; it is a collective burden upon industry in general, but the market does not allocate to each employer the share for which he is responsible.

As to the burden of unemployment, it is estimated that half of the burden of organized relief is really a cost of seasonal and cyclical fluctuations in industry, and if this was thrown upon industry, it would be a very small fraction of the loss caused by these fluctuations.

Cut in wages is the main remedy offered for diminishing unemployment. It must however be judiciously handled. The worker is interested in making it possible to the employer to use his skill, but wages below living requirements is not to be recommended. In any case, the market will be spoilt, and ground gained by costly strikes would be lost and suggest a vengeance from the organized labor.

Henry S. Dennison, President of Dennison Mfg. Co. says: "It is better social cost-keeping to add the overhead burden of unemployment to those goods which are responsible for irregular employment, than to draw it from the savings of the working group. Industry has a considerable share, in the opportunities for mitigation of unemployment, hence industry must be spurred to their exercise by carrying part of the burden." John Calder adds: "Each industry needs a surplus of labor; the surplus for the social good should be kept as small as possible, and it should be carried at the expense of industry."

The greatest waste of idle overhead in modern industry is that caused by the business cycle. We have had the opportunity of studying the wasted overhead and sunk costs caused by this phenomenon since four years, and nothing further need be said except that I am sure it is flattened out somewhere as it does not seem to roll by as it should.

Taxation—Costs of Government as Overhead Outlays

Modern governments have a tendency to enlarge the scope of their work. Many new activities come under the heading of paternalism, and whilst this paternalism may be economically useful, its costs are sometimes beyond its utility. They are not all burdens; some are worth their economic costs. But to the citizen they are

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overhead of which he profits more or less, whilst enterprises get sometimes direct benefits such as premiums for some classes of production or tax exemptions.

Think of government as a business house. In a business house certain services are directly traceable to certain products, and others are not traceable but must be distributed generally. The nation's welfare is a vast bundle of such services. The functions of a government are those which could not be carried on at all by competing private enterprises. We know however that governments become interested in certain trades and transportation, which for special reasons could no longer be carried on by individuals. In many cases, these ventures should be only transitory. Governments have enough of their own natural business to look after. As traders, they are seldom successful. As managers of industries and transportation, they seldom make a good showing.

The main services of governments are the protection of the rights of person and property, and the raising of public funds to fulfil these functions is based on ability to pay. In other words by taxation. It is very curious to note how little study is given to taxation by the taxpayer. Laws are enacted that could be very much simplified, but as long as it is thought possible to shift the tax to other taxpayers, no attention is paid. How many licensees can say that they do not have to absorb a good portion of, if not all the sales tax. It becomes an overhead cost of the sales, and a comparatively small amount is shifted to the community where in principle it should be found. The income tax cannot be shifted whilst the multitude of taxes of our numerous governments are all included in costs as overhead until part of them are transferred to the large family of sunk costs. It seems to me that much duplication and overlapping of taxes could be avoided by a little study and understanding between jurisdications.

Public Utilities and Others

I need not dwell on the problem of overhead in public utilities and transportation. The bulk of their expenses is overhead, and material costs in the pursuit of their current functions are relatively small. Seasonal variations play an important part, and rates have to be fixed so as to remove as much load as possible from maximum periods to off peak hours, days or months.

Increased size of equipment, and consequent reduction in operating expenses bring greater efficiency in service to a large number of customers, than in the case of smaller equipment with few consumers.

Telephone companies, however, show no sign of economy with increased size. They are just the opposite. There is distinct advantage to the community in unity of service, which could not be expected of several companies operating in a given district. Every new telephone installed involves service to all other subscribers, and thus increase in stations does not mean decreased costs.

Depreciation and obsolescence of equipment and other fixed assets in public utilities and transportation are the most important overhead problems in modern enterprises. They are fixed costs that cannot easily be altered.

Newspapers have their particular overhead apart from the regular costs. Their rates for advertising space are based on circulation, but circulation will have to keep rising during long periods, and show a large increase before prices of advertising can be raised. Selling price of the paper is always below the cost of production, so that

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regular or spasmodic increase in circulation has to be absorbed in overhead, or passed to sunk costs until better days. Whilst costs of editing and of part of printing are fixed and spread over the number of papers sold, thus apparently reducing the cost per unit, when circulation increases, this reduction is offset by the fact that extra service is given to advertisers without immediate tangible returns.

Banks find it hard these days to make their operations fit into their costs, with reduced clearings, services are multiplied on account of smaller amounts handled, and the large number of renewals involving increased bookkeeping. All bank expenses are overhead, and ratios do not vary proportionately to turnover as in other enterprises.

The Insurance business has the cost of acquisition as its principal item of costs, but it has the privilege of including it in costs. The rest of the burden is also absorbed after a few years of successful operations by revenue from various sources not found elsewhere.

Scientific Management

Overhead costs naturally include costs caused by waste. In many cases waste is the most important percentage of overhead. It is found in the factory at all stages of production as well as in the stores and in the office. The trader has to cope with the same situation.

The first scientific attack on waste in all its forms was by F. W. Taylor, an engineer who after years of observation and study, gradually offered a systematic control of labor, machinery and of all other factors of production.

He was born in 1856 and died in 1915, a discouraged man. It was only after his death, during the war, that his principles pervaded the manufacturing enterprises. Clemenceau in 1918 encouraged their application in France, and it is the rule in Soviet Russia's plants.

The engineer became interested in industry as far back as 1878, and it may be said that industrial engineering began in that year. In 1895, F. W. Taylor read his first paper on scientific management. It shook the old established empirical systems, but with little results.

Taylor's principles are defined as follows:

10. The development of a true science;
20. The scientific selection of the worker;
30. Scientific development and education;
40. Intimate, friendly co-operation between the management and the worker.

Feiss defining scientific management says: "It is organizing at all times for the best service based on the elimination of both waste in human effort and waste in other forms, and for the proper control of all elements in industry, making for the best efficiency and a fair return to all concerned at all times."

Taylor created scientific management, but a distinction must be made with administration. Management is the organization and procedure through which collective effort is effected; administration characterizes those considerations and decisions which establish the purposes which create the need for management, and those broad policies under which the management proceeds. By the use of dynamic costs, management freed from detail work, manages and develops. It looks into details when exceptional circumstances arise, thus applying the exception principle.

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As taylorism alone could be made the subject of a very interesting talk, I suggest that it be included in the program of our next session.

Let me, however, quote from Herbert Hoover's speech, on January 15th, 1925, on the report of a committee of seventeen engineers, who had investigated the waste in industry. Hoover gives a list of causes of waste, all of them sources of overhead and sunk costs:

1. Waste from the speculation, relaxation of effort and extravagance of booms with the infinite waste from unemployment and bankruptcy which came with the inevitable slump.
2. Wastes from excessive seasonal character of production and distribution.
3. Waste caused through lack of information as to national stocks, of production and consumption with its attendant risk and speculation.
4. Waste from lack of standards of quality and grades.
5. Waste from unnecessary multiplication of terms, sizes, varieties.
6. Waste from the lack of uniformity of business practices in terms and documents, with resultant misunderstandings, frauds, and disputes.
7. Waste due to deterioration of commodities.
8. Waste due to inadequate transportation and terminals, to inefficient loading and shipping and unnecessary haulage.
9. Waste due to disorderly marketing, particularly perishables, with its attendant gluts and famines.
10. Waste due to too many links in the distribution chain and too many chains in the system.
11. Waste due to bad credits.
12. Waste due to destructive competition of people who are in fact exhausting their capital through little understanding of the fundamentals of business in which they are engaged.
13. Waste due to enormous expenditures of effort and money in advertising and sales promotion effort without adequate basic information on which to base sales promotion.
14. Waste due to unfair practices of a small minority.
15. A multitude of wastes in use of materials, in unnecessary fire destruction, in traffic accidents and many other directions."

The investigation clearly indicates that industrial waste is caused not only by failure to use the time and energy of living men, but also from failure to use the productive equipment which has resulted from the time and energy expended by past generations. In the effort to eliminate waste of human energy, it is recognized that more must be accomplished in the same time, or the same accomplished in less time, and to this and the vast heritage of recorded knowledge of past experiences must be made available to an ever increasing number of men."

It was my good fortune to meet Mr. Knoepfel, a member of this committee in 1926 and 1927. From statistics and facts on over-equipment and excess production, I formed the opinion that the crisis was then under way, and that the market was breathing artificially.

Scientific management suggests a few words about technocracy, literally government by technicians to replace administration by financiers and manipulators. Note the difference between the terms. I have read a lot about technocracy. In my mind, it is an exaggerated treatment for an extraordinary sickness. It strikes at the germ and with many modifications it may do good. Fantastic figures were given that brought a smile to the incredulous, and the caustic remark that

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figures do not lie but that liars can figure. Nevertheless, like all revolutionary measures, it will leave traces in the evolution that will necessarily follow the depression, and as an American writer put it, it will finally resolve itself into common sensocracy.

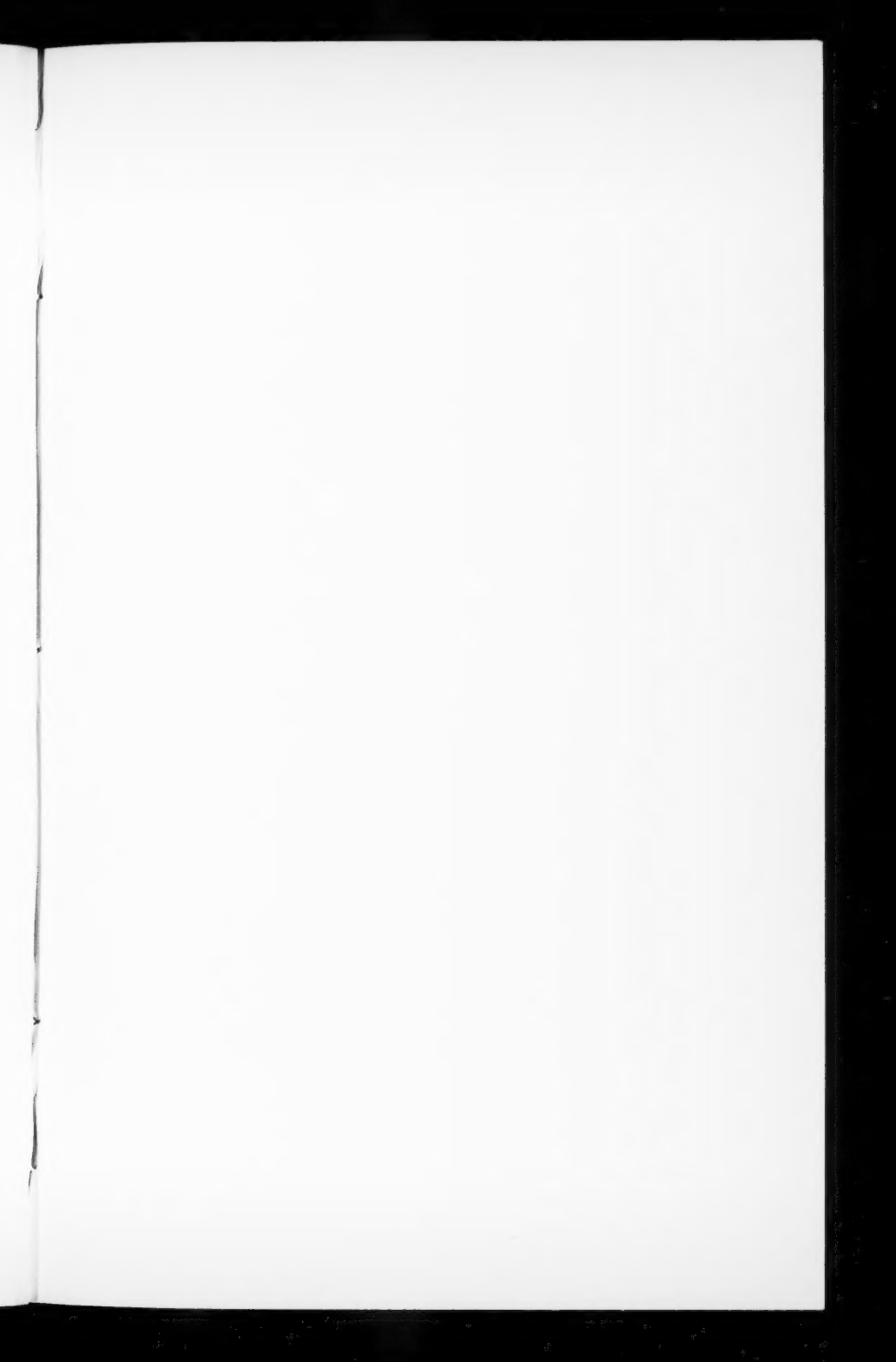
Most of you met Mr. Lucien Romier at our last dinner. His addresses delivered in Montreal are now published under the title "Problèmes économiques de l'heure présente." Most of Mr. Romier's works are translated. In his address: Responsibilities of capitalism and responsibilities of socialism, I find a most interesting paragraph. The brilliant author, one of the keenest observers now living, defining the responsibilities of capital and labor, offers various solutions to the present situation. Mr. Romier includes in overhead the expenses and remuneration of capital, management, taxes and all expenses except raw material and labor. In his presentation of the problem, he has adopted a low figure for overhead. This is enhanced principally by over capitalization. Thus we have three elements in production: overhead, raw material and labor. He assumes that they represent 50% and that distribution absorbs 50%, in all, 100%.

The purchasing power of the industrial class is placed at 100, that of the farming class at 80, and that of the liberal or non industrial class also at 80.

Production plus distribution equals the selling price. The problem of the present situation is set as follows. Production includes: overhead 15, raw material and machinery 15, and labor 20, total 50, plus distribution 50, grand total 100.

Assuming an industrial product marketed at \$100.00, it is offered at that price to the three purchasers. The first is directly interested in the work and profit of the industry, and its remuneration is in principle equal to 100 as it is precisely the remuneration of this industrial labor, which forms the selling price of the product. The purchasing power of the other two classes is inferior. They are farmers of the world, and all others who do not participate directly or indirectly into the industrial labor. This figure, 80 for each of these classes, represents the supposed ratio of under consumption, and under purchasing power characterizing them. The purchasing power of the non industrial classes is a factor determining two thirds of the balance of markets, and it is fixed principally by the price of the farm products, and the price of farming products is limited by consumption. No one can eat more than a certain quantity. The price of industrial products cannot be raised above a certain level if the farmer is expected to buy them. You have produced three automobiles to sell \$100.00 but only one client out of three can afford to pay for it. The elements of the selling price are cost of production and cost of distribution. This is the situation that determined the crisis.

Accepting the theme or hypothesis of over production, though doubtful, as the cause of the depression, the manufacturer curtails his production, as a solution, neglecting the other factors. We have the following: overhead: 20; raw material and machinery: 18; labor: 20 = 58 plus distribution 50 = 108. Reduced volume of raw material is replaced by increased cost of use of machinery. Labor per unit does not change, but the number of laborers is reduced. The laborer's purchasing power remains at 100 against a selling price of 108. This is what happens now in the world. Capital is deprived of its remuneration and distribution disappears for lack of sales. This is the



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result of the dogma of over production and its corollary, curtailed production.

The second solution proposed is increased production. The figures are altered and we have: overhead 12, raw material and machinery 13, labor $20 = 45$ plus 50 for distribution or a total of 95. It is the opposite process. Increasing production and reducing overhead and spreading of use of machine over a large number of articles. The industrial laborer will buy as the price is within his power, whilst the other two classes remain out. Net result: surplus stocks and capital charges added to over capitalization.

A third solution is expounded: Reduction of the working hours compensated by increased movement of machines, and salaries remaining the same. The machines work more but the number of units produced remains the same owing to decreased number of hours. Overhead remains at 15, raw material and machines climb down to 13, and labor $20 = 48$ as production cost plus 50 for distribution, in all 98. The purchasing ratio of the industrial laborer may be raised to 105 and the power of the other classes may be raised to 82 on account of the extra purchases of the industrial laborer. The farmer and the non industrial worker still remain unable to purchase. Supposing automobile workers get this increase through shorter hours, everybody will want to work in automobiles, and other branches will require a similar adjustment. Result: a parallel increase in cost of distribution right up to government employees, and increased public expenses. Farmers alone shall not get the increase, and again the problem of the crisis remains unsolved.

The fourth solution offered consists in joint sacrifices by capital and labor. Reducing capital by one third is followed by an equal decrease in overhead to 10. Keep production up to maintain raw material and machines to figure 13 as in previous examples. Impose a reduction of 15% only instead of one third to employees, and labor is reduced to 17. Through the contagious suggestion, middlemen, transportation firms and distributors accept a reduction of 20%, thus reducing their charges to 40, and the selling price is now 80. Everybody can now buy, and sales multiplied by 3 and 4. Very true salaries are 15% less, but the price is 20% less. His purchasing power is gone up. Increased turnover create profits which will soon offset the sacrifice of capital. The very important thing to get machines moving the selling price, is that everybody accepts his share of the sacrifice.

I close this quotation. I believe it fairly illustrates the variations of overhead in industry.

Concentration and mergers have not been very successful in reducing costs in as much as overhead is concerned, if it includes items named by Mr. Romier. Dean A. W. Taylor of the Graduate School of Business Administration of New York University, agrees with Romier. He writes: "A liquidation of capital, too, seems inevitable. A company that is bonded for, let us say, \$3,000,000. may be staggering under an unbearable interest burden. Cutting its indebtedness to \$2,000,000. would not reduce its plant; it would have the same number of machines, the same productive capacity, but it would have less debt to pay interest on. A good deal of the reorganization should be by the process of giving bondholders a proprietary interest in exchange for the bonds. That leaves them a chance to recover their investment when business improves."

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"If the capitalist contributes by giving up his interest, and the worker by accepting a lower wage per hour, I think we can look to the establishment of some sort of equilibrium between prices and purchasing power—and when that occurs the upswing ought to be on its way."

Importance of Reducing Costs Through Accurate Control & the Application of Bonus Methods

BY PAUL E. DUFRESNE
Industrial Consultant, Montreal

(Before Montreal Chapter, February 10, 1933)

The first requirements in manufacturing are:

- | | | | | |
|----|--------------------|---|---|-----------|
| 1. | Plant | | | |
| | | = | } | Invested |
| 2. | Machinery | | | Capital |
| 3. | Labor (direct) | | | |
| | (indirect) | | | |
| | | = | } | Operating |
| 4. | Material (direct) | | | Capital |
| | (indirect) | | | |

The material is processed through the plant, transformed or blended with other materials.

On its way it absorbs:

| | |
|-----------|------|
| Plant | Cost |
| Machinery | " |
| Labor | " |

The equation is therefore:

| | | | | |
|------------------|---|---|--|--------------|
| Material Cost | | | | |
| Plant Cost | | | | |
| Machinery Cost | | | | |
| Labor Cost | | | | |
| | } | = | | Factory Cost |
| + | | | | |
| Administrative | | | | |
| Selling | | | | |
| | } | = | | Total Cost |
| + | | | | |
| Profit or Loss | | | | |
| // | | | | |
| COST SOLD | | | | |

IMPORTANCE OF REDUCING COSTS

In the good old days, the margin between the total cost and cost sold was the unknown quantity and the equation was only solved once a year.

With modern management, manufacturing is becoming a science, and so that more people can enjoy the good things of life, commodities and luxuries have to be produced at a lower cost, and with a much narrower margin of profit.

Control of Costs

This necessitates a much closer control of each of the elements which make up the manufacturing equation and not only is it necessary to solve this equation many times during the year, but it is necessary to predetermine through budgets what each element should be, so that this equation may be profitably balanced.

The problem now resumes itself to:

A. What must be controlled

B. What are the means of control

Once set up, the operating cost of the plant and machinery, is only subject to narrow fluctuations, it is fixed and the amount of operating charges which will be absorbed by the product depends on volume. This includes interest on value of equipment, depreciation, floor space and expense for equipment on contract.

When the plant is in a position to give the sales department a product equally good and at equal prices to that of its competitors, it is somewhat relieved of the responsibilities because it is up to the sales department to get the volume.

The proper organization of a sales department and of a sales force is as important as the proper organization of the plant, and it is subject to definite principles of merchandizing, marketing, sales analysis, budgeting and methods of paying and remunerating salesmen.

Every one knows the scope of this subject and unfortunately the time does not permit going into any details.

Material Cost

The next item and probably the one which represents the greatest proportion of the total cost is the **Material Cost**.

The purchasing manager is responsible for the original cost of the material, but when it is in process of manufacture it must be closely supervised.

Material cost is comparatively easy to control because it is tangible; it can be easily measured; it can be seen and felt.

The principle check is:

A. **Quick turnover** to avoid dormant unnecessary capital.

B. **Minimum waste**: by waste it is considered any part which is not utilized, or which has to undergo a reclaim process before it can be used, or which has to be reprocessed, and even the percent by which the finished product is below standard possible quality.

This waste may be due to:

1. Careless processing.
2. Raw material not up to standard.
3. Raw material not in proper shape to be utilized to the best advantage.

The first necessity is measurement and record. It is necessary to set out an objective which must be established by careful study, then measure the actual with the standard objective and apply the reward or penalty.

The law of diminishing return must not be overlooked.

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In many cases it is difficult to measure and record waste accurately, unless a proper system is employed, and it is possible that a material saving device may be wasteful. Too complicated and cumbersome system.

Stolen material must be considered as waste, but to employ a \$1000. a year detective to prevent a possible waste of \$200 a year is certainly wasteful.

Selling defectives to employees is better than a complete loss, unless it gives employees an inducement to make defectives so they can later purchase them.

Labor Cost

We now reach the item of **Labor Cost**, which is without any doubt the most difficult to control. It is intangible, you do not see what you buy and you cannot feel it, but you pay for it. You can compare two lots of material accurately but for labor each one is different, acts differently and even the same employees vary from day to day.

The Difficulty of Controlling Labor Cost

This is proven from the fact that all countries have studied it at all times, and a considerable quantity of literature has been written on this subject, and still the problem is not fully solved, but far from it a new theory is now expounded by the technocrats. Men only started to work intensely from the sixteenth century, after the discovery of the new world. when a general swing seized Europe completely.

To reap the greatest possible profit from the work of their employees, the industrialists used several means to induce the employees to greater production.

Labor Incentives

The following is a very condensed summary of the evolution of the stimulating methods for employees.

It is hardly possible to classify as a stimulating method the chain or whip which was used on slaves, and even the proprietor of these slaves knew it to be in their interest to utilize with discretion the strength of their servants, in order to use them for as long a period as possible.

The antiquity gives us a stimulating method of first order, by which the slave was made to prolong his labor in order to obtain his freedom.

In the middle ages the labor was strongly stimulated by the hope of each employee to become his own patron.

The oldest method of payment is the Hourly basis, and it was soon found inadequate, just as much as if a dealer would only measure the width of his cloth and not the length.

The only way to stimulate the workers and still pay them by the hour is to synchronize their operations and control the speed by a conveyor, but this is possible only in a few cases and on very highly standardized operations, such as automobile bodies, axles, etc.

A method which is seldom met with at present is jobbing, whereby a foreman is given a fixed price per article and he hires and pays his own help.

This is very unsatisfactory because the jobber places his own interest first and hires inefficient and poorly paid workers, which was the cause of the so called sweat shop.

The first premium system was the Halsey & Williams and was introduced in 1891 in the plant of the Rand Drill of Sherbrooke, Que. by an American engineer named F. A. Halsey.

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This method consisted of paying the employees a fixed wage for a certain production, and so much per 100 pieces produced in excess of the minimum required.

This method of paying a fixed bonus per piece was found inadequate in America as well as in England, France and Germany because the employees were able to earn a premium greater than their base wage, which resulted in a reduction in the rates and dissatisfaction on the part of the employees.

The Rowan Method was an improvement because the amount of premium decreased as the production increased.

The Taylor System was the first satisfactory method because the rates of remuneration were established scientifically by motion and time studies, instead of the arbitration method.

A very important move has been made in recent years, with the introduction of the point system, which measures all the work in points and calculates the point efficiency of each employee.

The employees are paid by the Hour and receive a bonus according to their point efficiency.

This point system which is often called "Bedeau" is intended exclusively for the measurement of human labor.

Later it was developed in order to tie in with the cost system but does not give full satisfaction because it was not primarily designed for this purpose.

These point systems have two known faults:

First it places too much responsibility on the management by giving the employees full guarantee of their hourly pay.

Second it is too complicated, especially when it is used both as a measure of human labor and as labor cost method.

Its complications arise from the fact that all standard times are expressed in minutes, which is compared with the actual employees time in minutes.

For the pay, for accounting and especially for the cost records, the standard minutes and actual minutes must be converted into money.

In the final analysis, the control is partly in minutes and partly in money, which renders it difficult to calculate and especially to understand.

The absolute standard cost and wage method is fundamentally a labor cost method, and at the same time a wage incentive method.

It is similar to Bedeau, inasmuch as it pays all employees by the hour but their rate per hour can be automatically readjusted when their efficiency is below day work level.

The absolute Standard and Cost Method gives an absolute check between the actual cost of an operation and what is shown on the cost card.

All standards are expressed in money, and the same value which is used on the cost card, is also used to compare with the actual cost in the plant every time a certain operation is performed.

The ratio of actual cost to standard cost is the cost efficiency.

This method has the advantage of constantly checking the actual cost of each operation in the plant with what is shown on the cost card. The best controlled organization is the one where not a sous is paid unless something is produced, and better still where only good production is paid for and any waste over standard or defective workmanship is charged to the employee at fault.

Business Risks and Their Insurance

By A. E. BLISS

DuMoulin and Bliss, Hamilton, Ont.

(Before Hamilton Chapter, February 15, 1933)

THE business of insurance is divided into four main groups, namely: Fire, life, marine and casualty insurance, and as the placing of almost any risk is really a business transaction, I think it may be advisable to outline briefly the history and some of the salient features of each principal type of insurance.

Fire Insurance

This is probably the oldest known form of insurance. Some 4,000 years ago, fire losses prompted the Communes of the Assyrian and other near-eastern nations to enact remedial laws. The plan of protection formulated really amounted to government insurance and was two-fold in character. First, each community member was assessed a certain fee by the authorities and this was placed on deposit. Second, in the event of an accidental fire, a levy was made upon the members of the community and if a member failed to meet this levy, his original deposit was taken in lieu thereof.

Fire insurance next makes its appearance in history in the year 1240, when fire insurance in Flanders was made mandatory. The system enforced there being an assessment or tax on the population of the country for an amount to cover each individual loss. Some 350 years later, Anglo-Saxon and German trade guilds adopted the practice of regular contributions by members for protection against losses by fire. In England, private persons petitioned in the year 1635 for the grant of a patent (in other words a charter) for the establishment of an insurance company, but with the request for this charter was attached the right of monopoly and the charter was therefore not granted.

A few years later, on Monday, September 2nd, 1666 to be exact, a fire started among the wooden shacks that housed the larger portion of the population of London and by the following Friday, the devastation of London was practically complete and the fire stopped owing to lack of further fuel, with a total loss of the appalling sum of \$60,000,000.00.

Shortly after this catastrophe, a number of fire insurance societies were formed and operated with indifferent success until the year 1706, when one Charles Povey consolidated a number of the various insuring interests into one association called the "London Insurors", which subsequently became the "Sun Fire Office", which office is still operating successfully. A number of other companies, chief among them being the Royal Exchange Assurance and the London Assurance Corporation, followed the Sun Fire Office by a few years and these organizations were more or less duplicated in the United States some twenty years later.

On this continent, in the year 1866, the National Board of Fire Underwriters was formed in the United States by the Stock Companies doing business at that time, and after this Board was patterned our own Canadian Fire Underwriters Association.

BUSINESS RISKS AND THEIR INSURANCE

The Canadian Fire Underwriters Association is an underwriting and rating group composed of the stock companies and supported directly by contributions from these companies. This Association has a very complete record of the loss experience of practically all types of buildings and industrial processes and in the promulgation of any rate, a great number of factors are taken into consideration, including construction of building, location of building, occupancy of adjoining buildings, efficiency of fire department in area, etc., and through every change of occupancy, all these factors are again taken into consideration when promulgating a new rate for an incoming tenant.

The magnitude of the work that this organization has accomplished is evident when it is realized that every dwelling, every factory and every store, with dimensions, type of construction and occupancy, is shown on the underwriter's maps of each section of the country, which are known as "Goad's Plans". Supplementing this, there is in the office of all the representatives of tariff companies, a card-index system, showing the occupancy and tariff rates for each risk and kept up to date by a regular and frequent inspection.

The offices of the Association are located in Montreal, Toronto, Winnipeg and Vancouver. In addition, in all the larger cities, is a rating officer and staff.

The next type of fire company is what is known as a non-tariff company. These companies are stock companies but are not members of the Canadian Fire Underwriters Association and undertake to set their own rates for each individual risk. The saving they effect by having to make no payment to the upkeep of the rating bureaus is passed on to the public.

The third type of company is what is known as the mutual company. These companies have no share capital and the policy-holders are the owners and the share-holders. In this connection it might be well to point out that while there are a number of sound strong mutual companies doing business both in Canada and the United States, that anybody, before entering into contract with a mutual insurance company, should investigate its financial status as well as the contract and its assessability, as unfortunately, since 1920, some 2,200 companies of a mutual or reciprocal type have either failed outright or had their risks taken over by companies in stronger financial condition.

There is still one more type of company which is known as a "reciprocal" or "insurance exchange". These are usually voluntary associations organized to write insurance for their subscribers. The method of operation of "reciprocals" is usually to employ what is known as an attorney-in-fact to manage and underwrite the business for this type of company. The attorney-in-fact is paid a percentage of the income of the companies. If considering fire insurance of this class, I would recommend that a copy of the power-of-attorney, which the assured completes, should first be submitted to the assured's solicitor for his opinion as to the advisability of signing this document.

So much for the various types of companies writing fire insurance.

Life Insurance.

The functions of life insurance are so well known that I will just touch briefly on this branch of the insurance business to say that the life insurance companies operating in Canada are sound,

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safe and well established, so much so, that since Confederation there has not been a failure of a life insurance company entailing monetary loss to any policy-holder.

Marine Insurance.

Marine Insurance is one of the older forms of insurance and as far back as 500 B.C. we have contracts of marine insurance, through bottomry loans. These were an advance of money made to the owner of a vessel at a very high interest rate, with the provision that the loan did not have to be repaid in the event that the vessel was lost. In the year 1601 a court of arbitration was established to decide disputes over marine insurance policies. At about this time, the most popular meeting place in London for sea captains and those interested in shipping, was a coffee-house kept by Edward Lloyd and it was only natural that all kinds of business pertaining to shipping was discussed. Cargoes were contracted for, ships bought and sold and underwriters began to transact their business at this location.

Eventually these underwriters became known as "those who write at Lloyds" and from this group has grown one of the most famous names in the world in connection with insurance.

The present "Lloyds" is not an insurance company, but a group of individual underwriters who underwrite a percentage of each offering as their individual preference dictates.

A great many of the fire companies also have marine departments and in some cases the marine department is really the company and the fire department more or less a subsidiary department. A company of this type is the Union Insurance Society of Canton, Limited, which was formed by a group of British business men in the far east for the purpose of underwriting their cargoes which emanated from that source, and at a subsequent date commenced writing fire insurance.

In addition to writing hulls and cargoes, the marine companies write a great deal of fire business under the form of floaters or blanket policies, as well as issuing policies for such special risks as jewellery—fur floaters, motor boat insurance, musical instrument floaters, Neon signs, parcel post policies, personal effects, radium, registered mail, salesmen's samples, scientific instruments, etc.

Casualty Insurance

Casualty insurance is a general term embracing a number of different forms of insurance which are mostly of fairly recent origin. The chief forms of cover being automobile insurance, liability insurance, in its various branches, robbery, hold-up, boiler explosions, forgery insurance and personal accident and health insurance and a great number of other forms not so frequently used.

Time does not permit us to dwell on all these forms, but it might be well to briefly consider for a few minutes automobile insurance and the provincial legislation accompanying same.

An automobile policy consists of five distinct forms of cover. Namely, legal liability to the public for bodily injuries or death, damage to property of other people, collision insurance (which covers practically all forms of damage done to the assured's car) fire insurance and theft insurance.

The Highway Traffic Act of Ontario does not require that insurance of any kind be carried unless the driver be convicted of an offense relating to the use of motor vehicles, in which case the Registrar of Motor Vehicles may require that proof of financial

BUSINESS RISKS AND THEIR INSURANCE

responsibility be filed, which may take the form of an insurance policy covering public liability and property damage or provincial or federal government bonds for an amount of \$11,000.00 or the bond of a corporate surety, guaranteeing payment of \$11,000.00 or four individual sureties guaranteeing jointly \$11,000.00.

The registrar is also prepared to accept voluntary proof of financial responsibility if the car owner desires to file same, but with the facilities at the disposal of the automobile insurance companies at the present time, I do not consider that this voluntary filing accomplishes any useful purposes.

The Highway Traffic Act in this province is looked on generally as probably the most advanced form of automobile legislation on the continent. In fact, so much so, that the other provinces in Canada either already have or are passing similar legislation, as well as a number of states in the Union.

The Act does not mitigate against the responsible driver, who unwittingly does damage to another person or another person's property, provided proper settlement is made, but in the event of damage being done or injuries caused and the person responsible does not arrange settlement, the Registrar is empowered to cancel the driving license and have the car license plates surrendered until such time as settlement is made.

Robbery, hold-up, burglary and insurance of a similar nature warrant a little discussion owing to a great deal of confusion in the minds of the insuring public regarding terms of this nature, which often lead to unpleasant situations arising through the assured not having the type of cover that he intended placing, through a misconception of the various terms. i.e. Most retail store-keepers carry what is known as a combined hold-up, robbery and safe burglary policy and the intention of this policy, which is quite clearly expressed in the policy itself, is that it provides protection in the event of the assured or one of his staff being held up or robbed while inside or outside the premises and also covers money while left in the safe during the hours when the store is closed.

A number of losses have occurred in Hamilton of recent years where a store has been entered by burglars during the night and money taken from a cash register and stock taken from the store. A loss of this nature would not be a claim under the particular policy I have just outlined, owing to the fact that it was a burglary loss and the policy only covers burglary as far as the safe is concerned and the safe was not interfered with. If the store-keeper desired cover for a loss of this nature, a policy covering open stock burglary should have been placed. The money in the cash register could not be covered in any policy and should have been placed in the safe.

Instances such as this are bound to occur unless the greatest care is taken by both the agent and the assured that the various policy terms and conditions are clearly understood before the assured decides on any type of policy.

A simple illustration of the proper form of cover against loss by thieves, is the modern robbery, burglary, theft and larceny policy, designed to protect the house-holders' goods and chattels. The policy is now so well-drawn and so well-worded that it is almost impossible for the assured not to be recompensed in the event of loss.

The robbery feature is designed to provide cover against hold-up of the assured or members of his family, while away from their

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dwelling and also covers, should a hold-up occur inside the premises.

Burglary covers the loss incurred through a forcible entrance being effected by a burglar such as jimmying open a door or window, etc.

The theft section takes care of the situation arising through a thief effecting an entrance through an unlocked door or window.

Larceny covers theft by trades-men or employees of the assured, having the right to be in the premises. This form of policy, I think, illustrates very clearly the different hazards connected with what are commonly known as loss by theft. If the policy were to cover burglary only, no claims would be considered unless a forcible entry had been effected.

I use this simple illustration as a warning of the dangers of policies of this nature, such as pay-roll robbery, interior robbery, safe-burglary, open stock burglary, all of which cover just for those terms and when insurance of this type is being placed, the assured should go very thoroughly into the matter with his agent and leave no loop-hole through which loss may occur, owing to a misunderstanding of any of these various terms.

Forgery.

Forgery and check alteration insurance is another fairly recent development in the casualty field, owing to the fact that forgery losses have increased in the last ten years from approximately a million dollars a year to over two hundred million dollars. There are a number of different forms of forgery policies, the usual one being what is known as the depositors form, which is written for any individual or business concern which does business with a bank and protects the assured and any bank or banks in which he has his account.

There is an impression in the minds of many laymen that the use of safety paper in the manufacture of cheques and the use of mechanical protective devices for the writing of same, obviate the possibility of loss. This, unfortunately, is not the case. In fact, these steps assist, rather than hinder a clever group of forgers in their operation, owing to the fact that the more distinct in appearance a cheque is, the simpler, once it is duplicated, to effect its cashing.

Bonds

Bonds are usually issued through the casualty department of the insurance companies but properly speaking, they are not insurance policies at all. The difference being that a policy of insurance is a two party agreement, whereby party "A" agrees to reimburse or otherwise indemnify party "B" in the event of loss through a certain contingency.

Bonds on the other hand are a three party agreement, whereby party "A" agrees to indemnify party "B" for loss accruing through the action of party "C".

As an example, there is the ordinary fidelity bonds, arranged by the employer with a surety company, whereby the surety company agrees to bond the third party (cashier or other employee). This principle holds through all forms of bonding.

There have been tremendous developments in the last ten years of the bonding business, owing to the fact that all employers from the largest corporations down to small retail merchants, realize that no system of accounting can be made absolutely fool-proof and

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that in any business house or financial institution it is possible for an employee or group of employees to embezzle.

Education along these lines is usually only obtained through direct experience, as in most cases of fidelity losses there is no publicity resulting from the claims, as settlement is usually effected without prosecution of the offending party.

Another reason for the interest being taken in bonds of recent years, is the realization on the part of employers that through placing a bond on an employee the necessity of a long personal investigation is obviated as a very thorough and complete investigation is undertaken by a bonding company before a bond is issued.

Accounting By Modern Machine Methods

By G. H. SHEPPARD

International Business Machine Co. Ltd., Winnipeg.

(Before Winnipeg Chapter, December 13, 1932)

LAST Thursday there appeared on the editorial page of the "Winnipeg Evening Tribune" a quotation reprinted from the "London Times" of 100 years ago that day, Dec. 8, 1832. This article was originally taken from the "Mechanic's Magazine" and appeared in the "London Times" as follows:

"Mr. Babbage and the Interests of Science.—We look for a great deal of good to science, as well as to every other important interest of the country, from the return to Parliament of a gentleman of Mr. Babbage's eminence in the scientific world, tried independence of spirit and very searching and business-like habits; and therefore we take the liberty to say to every elector of Finsbury who is a reader of this journal and a friend to the objects which it has specially in view—Go and vote for Mr. Babbage; harassed and obstructed in your operations by fiscal regulations and would see industry free as the air you breathe—go and vote for Mr. Babbage. If you are a mechanic, depending for your daily bread on a constant and steady demand for the products of your skill and are as alive as you ought to be to the influence of free trade on your fortunes—go and vote for Mr. Babbage. If, in fine, you are a lover of science for its own sake alone and would desire to see science honoured in those who most adorn it, meet us today on Islington-green and vote for Mr. Babbage."

It is interesting to note, when discussing accounting by machine methods that Charles Babbage of London, England, was probably the first individual to forecast the computation of arithmetical calculations by machinery. His first calculating machine which he called a "Difference" or "Analytical Engine" was built between the years 1820 and 1822. It operated after the manner of the "Jacquard" loom, from holes punched in a card. The card used by Babbage contained as many holes punched in a vertical column as the number desired to record. For example, if it was desired to record a "6", six holes in one vertical column would be punched.

The original model of one of the Babbage Calculating Machines was purchased from the inventor in 1858 by an American citizen. This may be seen at present in the Dudley Observatory at Albany, N.Y.

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Hollerith Development

Several improved and distinctive types of automatic, mechanical and electrical punching, counting, sorting, tabulating and printing machines have been developed by resourceful inventors since the days of Babbage, notable among whom was Dr. Herman Hollerith, a recognized statistician in Washington. This man developed these machines for the rapid handling of census data. At the beginning of the 11th census in 1890 a commission of three expert statisticians was appointed to make a test of all available systems for tabulating census data. A report showed that the punched hole method was more rapid and accurate than other available methods. As a result of this report, the Hollerith method was selected to compile the census taken that year. Other governments followed in the use of this method and gradually the machines were also adapted to commercial uses. The first experiment along this line was in railroad accounting.

Electric tabulating machines have been constantly developed and improved up until the present time, when it is possible to perform an enormous amount of accounting work in a variety of applications and to effect tremendous savings through the use of these machines.

The effect of machinery in the factory has been to reduce costs, turn out better products, multiply productions and make for better conditions for workers. The same beneficial effect results from the use of modern machine methods in the office.

We are compelled to recognize that the greatest accounting machine in the universe is the human mind. There is nothing which cannot be accomplished by the individual. He can perform any mathematical process and can record, distribute, dissect, etc. and no mechanical machine can really equal the human machine. But the latter is too valuable to apply to routine work and is too slow to meet modern requirements. Furthermore, on the average, it is too inaccurate, because it is human. Industrial accounting is therefore turning more and more to mechanized processes and leaving the human mind free to do what it alone can do—THINK.

Method of Operation

Let us examine the tabulating machine method and find out how it functions. The basis of the method is the tabulating card. Card forms are designed for an individual business after an exhaustive study of the work to be accomplished and the results desired. Provision is made on the card for recording such information as is necessary in order to secure the reports from the tabulating machine.

There are two sizes of cards, one having 45 columns and the other 80 columns. The actual dimensions of both cards are the same, but the spacing of columns is different. The card is divided into fields, which means the allocation of one or more columns for a particular classification. Various colors and combinations of cards are used, each of which may be printed with an endless variety of fields and headings, with combinations of columns suitable for the intended purpose.

Codes are originally set up as a means of recording data on tabulating cards. Recently Alphabetic Tabulating Equipment has been placed on the market and with the advent of this, codes become optional to some extent. The information is punched into the cards by means of a key punch, which is a recording device operated at an average speed of 4 or 5 characters per second. As in any other method of manual recording, it is possible that errors may be made. To

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insure accuracy, the punching is verified. There are several methods of verification, the one most generally used being the Verifying Key Punch. This machine is somewhat similar to a key punch, but does not punch holes in the card. Of the many methods of verification, all take place while the records are in the same order as the original document. The importance of this point cannot be emphasized too strongly, because this is one of the features which distinguishes the punched card method from other mechanical accounting methods. The plan generally adopted in other methods is to make the distribution first and then later check up on its accuracy. With the punched card method, the punching is the only point at which the human element enters, subsequent operations are automatic. Furthermore, a punched card forms an unalterable record and the figures recorded by means of punched holes are not subject to change or transposition. For instance, \$15.39 can never become \$15.93, as once it is correctly punched it remains so.

The electric sorting machine makes it possible to sort an enormous amount of data into various classifications with the utmost speed and accuracy. The sorting of the cards takes place at a speed of 400 cards per minute.

The printing tabulator is used to list details from individual cards or to add, accumulate and print classifications, totals and accumulated totals. This machine operates at a speed of 150 cards per minute. It is possible to make 6000 additions per minute on the tabulating machine.

What can be Shown

In order that you may visualize the possibilities of these machines let us consider a group of cards punched to represent items on sales invoices. It is possible to produce the following analyses from such a record:

- Cost of sales.

- Classification of sales by products and departments.

- Classification of sales by salesmen and branches.

- Credit to inventory from shipments.

- Classification of sales by kind of business.

- Classification by customers.

You gentlemen present tonight are fully aware that for many years we have been wrestling with manufacturing costs and for the most part are now able to bring these costs under control. The problem of distribution, however, has not yet been brought under the same efficient control and the punched card method is playing a prominent part in assisting management to study distribution expense and formulate ideas along this line. It is possible to secure facts with respect to advertising, selling, warehousing, packaging, transportation, demand, etc. through the use of tabulating machines. Undoubtedly the facts are available in your organizations right now, but the task of digging them out, compiling and comparing seems enormous by hand method.

Another troublesome problem of the present day is that of inventory control. The method about which I am speaking has been used for many years with distinct advantage in inventory work and with the advent of the Automatic Multiplying Punch, the electric tabulating machine method becomes even more effective. To illustrate the speed and adaptability of this machine, it is necessary to compare the possibilities of automatic multiplying on this machine

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with that of human effort. For instance—anyone here could multiply 8 digits by 8 digits and write down the answer after slightly more than three minutes effort. The machine to which I have just referred will do the same work in five seconds. If it were possible for you to continue multiplying at the same rate for 8 hours, you would complete approximately 150 extensions in that time. The automatic multiplying punch would complete 5760 extensions in the same time. In other words, volume necessitates the use of rapid machine methods, which tend toward a greater degree of accuracy and lower cost.

Perhaps one of the most interesting phases of inventory control is what we commonly call a perpetual inventory. There are various methods of handling a perpetual inventory. One of the simplest forms is the application to Punched Hole Accounting, in which it is possible to control an inventory comprising thousands of items with very little manual effort. It is possible to punch cards for receipts and disbursements as goods are received and orders are filled and at the end of a period to automatically punch balance forward cards, as the inventory is being prepared on the tabulating machine.

This introduces a unique machine which we have recently developed. I refer to the summary card punch, which can be set to automatically punch not balance forward cards. Other uses of this ingenious device include the preparation of summary or total cards, which may be used to cut down the volume of cards to be run at the end of a period, thereby saving considerable time in delivering important statements to the management.

In dealing with the question of inventory control it might be well to emphasize the fact that while it is often possible to save a considerable sum annually in actual clerical expense by adopting machine methods the real saving is realized by reason of the possible reduction in stock and the efficient control which can be exercised over the entire inventory. Overstocking is costly because it will eventually mean "marked downs" and terrific reductions after the stock has taken up valuable space for many months and possibly years. Understocking is serious because it means the loss of business. It is the happy medium which must be aimed at and proper inventory control makes this possible through the use of machine methods.

CHAPTER NOTES

TORONTO

Reported by W. A. McKague, general secretary.

About 100 Toronto members and guests turned out on April 10th for the closing dinner, held in the Royal York Hotel. Mr. R. H. Coats, head of the Dominion Bureau of Statistics, spoke on "Something About Statistics." Those who had feared that this might be a dry subject were agreeably surprised for Mr. Coats succeeded in injecting it with both life and humour.

Government statistical bureaus are primarily to give the government accurate knowledge of the facts, for its guidance in legislation and administration. Their figures are also of great aid to business, however. Mr. Coats was able to cite positive instances of this.

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One of the great difficulties was in arriving at uniformity in methods of collection and presentation, so that a figure purporting to show "capital investment" in one line of industry, would be comparable with the capital investment shown for another. Great progress has been made in this direction in Canada, so that Mr. Coats was able to show that the various statistical officers produced information which right or wrong was at least uniform and comparable. Recalling the now-old adage about the three degrees of prevarication—"lies, damned lies, and statistics," he pointed out that it is now replaced by a modern version, viz., that "figgers don't lie, but liars can figure."

The April meeting concludes the 1932-33 series of meetings of Toronto Chapter, but some summer activities are contemplated. The first of these will be a golf game at the Ancaster Club, Hamilton, on May 19th. Notice of this event is being enclosed to members, and a good Toronto turn-out is expected, as it is a real privilege to have access to such a high-class course as Ancaster, and at such a moderate charge as \$2.50 for the golf and refreshments.

VANCOUVER

Reported by Maurice Willis, Secretary

Mr. D. M. Farish, C.A., member of the Montreal Chapter, was guest at the annual dinner held on April 11th in the Vancouver Hotel.

In a short talk on "Temperance in Business" Mr. Farish outlined a position which we are all experiencing at the present time. What lesson have we learnt from the depression, was his question. Looking over the government situation the depression has made us realise the faults of administration, there is one Dominion government and nine Provincial governments for the small population of Canada, which is duplicating the costs and is a serious problem of overgovernment which means overtaxation.

The Provinces, Mr. Farish pointed out, should amalgamate where economically possible and where the interests are identical. As Accountants we should ask the question "How much Government can we afford to pay?" But before governments can be readjusted the individual should first arrange his personal affairs.

The individual, the speaker stated, worships the old dollar and does not look into investing, it is up to everyone to be more cautious and learn how to invest money.

What has the depression taught the Companies? asked the speaker; they are overdeveloped and have an output capacity which is greater than the needs of the country. We have not been temperate in our methods but have been carried away by mass production which has caused overproduction. Now is the time to get things in order and if individuals, companies and governments can readjust themselves to meet the present depression and stick to the lesson that they are now learning. When better times come again Canada cannot help but prosper. But as the speaker pointed out, this lesson must be learned in our individual actions. We hope to see this talk in print during the summer as it is beneficial to every one.

During this meeting the Vancouver Chapter offered a prize of five dollars to the student member giving the best ten minutes talk on any cost accounting subject, but unfortunately, through shyness

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or some such reason, there were only two members present who accepted the challenge. Mr. J. L. Baxter, of Fraser Motors Ltd., New Westminster, spoke on "Costing for the Automobile Dealer" and outlined the method devised by the Ford Motor Company for their dealers. Mr. C. N. Pearse talked on "Cost Accounting. Its definition, Requirements and accomplishments" being a review of Mr. Hill's first lecture before the student group.

As there were only two members speaking and as the subjects were totally different it was agreed that both should receive the prize.

The Vancouver Chapter were quite pleased to have had Mr. Farish's visit for the Annual Dinner and were sorry to learn that Mr. Peto will be unable to pay a visit to the Pacific Coast as previously scheduled.

Okay Montreal.

MONTREAL

Reported by W. A. McKague, General Secretary

The concluding dinner of Montreal Chapter, at the Windsor Hotel on April 21st, was one of the numerous successful affairs in the history of the Chapter. The speaker had a brief but interesting message. Robert J. Magor, president of the National Steel Car Corporation, Ltd., covered in a broad way some of the present economic problems of business. Unemployment and the depression are not due specifically to mechanization, but rather to the extreme fluctuations to which the machine system has been subjected. Elasticity was not a feature of the machine age, and beyond a certain point of exhaustion mechanization could be carried to limits where injury was done, he contended, and he illustrated by referring to the industrial economy of the United States immediately prior to the war, when the culmination of a period of intense machinery building had coincided with a flood of money from Europe.

It was these extreme fluctuations in the machine system which caused the depression, much in the same manner as extreme exercise, either too little or too much, injures the human body. It was not the mechanized age that was responsible but the extreme fluctuations to which it was subject.

Dealing with some practical remedies for the situation, Mr. Magor said that restricted speculation within controlled limits had never done any harm and was a problem that must be met. He discussed other practiced considerations of a technical nature of interest to the body of men he was addressing.

The speaker was introduced by J. P. Masterson, chairman, and thanked by Lorenzo Belanger. Major D. R. Patton was installed as chairman for the ensuing year, and R. W. Louthood expressing appreciation of the retiring president's activities, presented Mr. Masterson with a silver cigarette box on behalf of the society.

Conductor—"Can't you see the sign 'No Smoking'?"

Sailor—"Sure, mate, that's plain enough. But there are so many dippy signs here. Looka there, one says, 'Wear Nemo Corsets.' So I ain't paying attention to any of them."

* * * *

Peter (saying his prayers)—"And please make Cyril give up throwing stones at me. By the way, I've mentioned this before."

